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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,809	09/23/2005	Chan-Jae Lee	2025-05	3991

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LOS ANGELES, CA 90010

EXAMINER

KAMEN, NOAH P

ART UNIT	PAPER NUMBER
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3747

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary

Application No.

10/550,809

Applicant(s)

LEE ET AL.

Examiner

Noah Kamen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7-10,12-16 and 18 is/are rejected.
- 7) ☒ Claim(s) 2,6,11 and 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by JP06229319.

JP'319 discloses a PCCI including a water injector 31 and a spark plug 32. While the fuel injector is not shown, it is deemed to be in the intake so as to form the recited fuel/air mixture.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'319 in view of Reuchlein (4824149).

JP'319 discloses a PCCI including a water injector 31 and a spark plug 32. While the fuel injector is not shown, it is deemed to be in the intake so as to form the recited fuel/air mixture.

Reuchlein disclose a generator located on a connecting rod that connects a piston 2 to a crankshaft 18, and while the generator is in a stirling engine; it would have been obvious to one of ordinary skill in the art to modify JP'319 to include a generator on the connecting rod in view of the teachings of Reuchlein so as to produce electricity.

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Claims 8, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'319 in view of Karlsson (6234120). JP'319 discloses a PCCI including a water injector 31 and a spark plug 32. While the fuel injector is not shown, it is deemed to be in the intake so as to form the recited fuel/air mixture.

Karlsson discloses oppositely acting pistons 9, each connected to crankshafts 4, 11 that are connected to each other by a belt 14. It would have been obvious to use the engine of JP'319 in an oppositely acting piston type engine as taught by Karlsson for having low vibration and high power output.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'319 in view of Karlsson as applied to claim 8 above, and further in view of Tomoiu (5237964). Tomoiu discloses a water injector 30 controlled by a temperature sensor 36, and to do likewise in JP'319 for optimal and accurate control would have been obvious to one of ordinary skill in the art.

Claims 13,15,16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'319 in view of Reuchlein and Karlsson.

JP'319 discloses a PCCI including a water injector 31 and a spark plug 32. While the fuel injector is not shown, it is deemed to be in the intake so as to form the recited fuel/air mixture.

Reuchlein disclose a generator located on a connecting rod that connects a piston 2 to a crankshaft 18, and while the generator is in a stirling engine; it would have been obvious to one of ordinary skill in the art to modify JP'319 to include a generator on the connecting rod in view of the teachings of Reuchlein so as to produce electricity. Karlsson discloses oppositely acting pistons 9, each connected to crankshafts 4, 11 that are connected to each other by a belt 14. It would have been obvious to use the engine of JP'319 in an oppositely acting piston type engine as taught by Karlsson for having low vibration and high power output.

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Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'319 in view of Reuchlein and Karlsson as applied to claim 13 above, and further in view of Tomoiu (5237964). Tomoiu discloses a water injector 30 controlled by a temperature sensor 36, and to do likewise in JP'319 for optimal and accurate control would have been obvious to one of ordinary skill in the art.


Allowable Subject Matter

Claims 2, 6, 11, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Noah Kamen whose telephone number is 571 272 4845. The examiner can normally be reached on M-Th 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Cronin can be reached on 571 272 4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Noah Kamen
Primary Examiner
Art Unit 3747

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